imputation or otherwise) that the City of Naperville is relieved from because of its status as a municipality.

The ITA reserves the right to make further recommendations as the record of this docket continues to be developed.

Q. If the City of Naperville agrees to make the commitments requested by the ITA, should those commitments be reflected as conditions in the Order entered by the Commission in this proceeding?

A. Yes, they should.

Q. If the City of Naperville refuses to make the commitments requested by the ITA, what actions should be taken by the Commission?

A. The Commission should limit the Certificate of Service Authority granted to the City of Naperville as outlined by the ITA and deny the request for additional Certificate Authority. It should deny the City of Naperville's request for a waiver of Part 710. The Commission, in order to assure fair competition, should also then impose as conditions, the City of Naperville's compliance with each of the Code Parts that I have identified.

Q. Has this Commission previously granted Certificates of Service Authority to provide telecommunications services to other municipalities?

A. Yes, it is my understanding that this has occurred.

646

647 Q. Did the ITA actively participate in those other municipal certificate dockets?

648 A. No, it did not.

649

650 Q. Why is the ITA now intervening in the City of Naperville's certificate docket

651 when it did not intervene in the prior municipal certificate applications?

652 A. While in retrospect we may have been remiss in not intervening in prior

653 proceedings in which municipalities sought Certificates of Service Authority, at

654 the time issues related to municipal entry had not clearly been brought into focus

655 by the Association or its membership. Recently, issues related to municipal entry

656 have been the focus of discussion and litigation, some of which are pending

657 before the United States Supreme Court. The issues related to and the

658 implications of municipal entry have recently been the focus of research and

659 discussion, which made the ITA and its membership realize that those issues

660 needed to be addressed now in Illinois. For example, I am attaching to my

661 testimony for the Administrative Law Judge's and the parties' easy reference, a

662 study released in February, 2004 prepared by Thomas N. Lenard, Ph.D., who is a

663 Senior Fellow and Vice President for Research at the Progress & Freedom

664 Foundation, with regard to these issues. That study is Attachment 11. The ITA

665 Board of Directors determined that issues related to municipal entry needed to be

666 brought before the Commission for its consideration at this time resulting in our

667 intervention in this proceeding.

668

669 Q. Is the ITA reviewing what actions it may take with regard to municipalities that
670 have already been certificated to provide telecommunications services in Illinois?
671 A. Yes, we are.
672
673 Q. Does that conclude your testimony?
674 A. Yes, it does.

Certificate of Service

Docket No. 03-0779

The undersigned certifies that a copy of the Direct Testimony of Douglas Dougherty, President of the Illinois Telecommunications Association, was served upon all parties via Federal Express except for Douglas Dougherty, whose copy was sent via U.S. Mail, all properly addressed and with proper postage affixed thereto, this 18th day of March, 2004.

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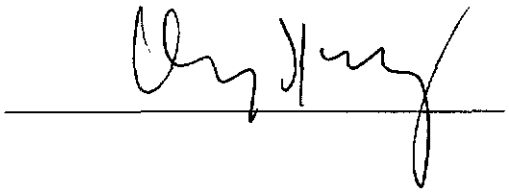

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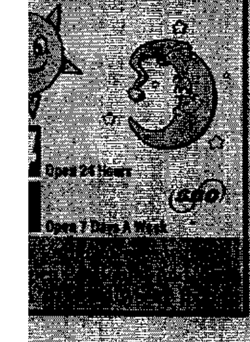

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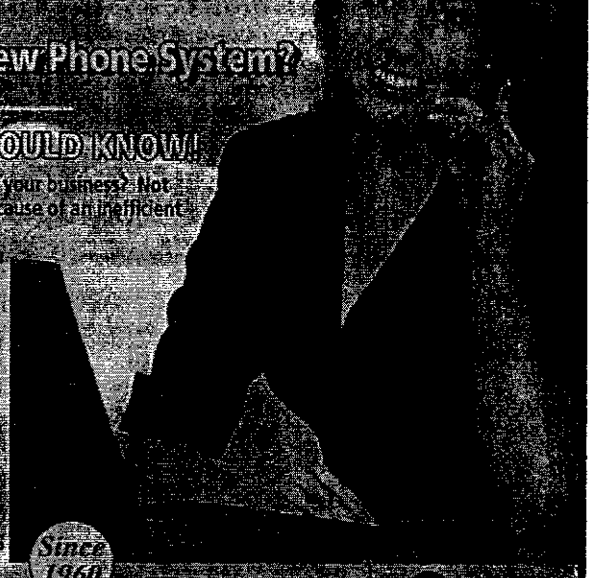

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STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

CITY OF NAPERVILLE	)	
	)	
Application for Certificates of Service	)	
Authority to provide facilities-based and	)	Docket No. 03-0779
resold local exchange and interexchange	)	
telecommunications services, or in the	)	
Alternative, Request for Declaratory Ruling	)	
than no such Certificates are required for	)	
the City of Naperville to provide the	)	
Proposed facilities and services.	)	

CITY OF NAPERVILLE RESPONSES
TO FIRST SET OF DATA REQUESTS FROM
THE ILLINOIS TELECOMMUNICATIONS ASSOCIATION

DATA REQUEST

ITA 1.13 Does the City seek authority to provide local exchange service in geographic areas that are outside of the City's municipal boundaries?

Response: Yes.

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

CITY OF NAPERVILLE	)	
	)	
Application for Certificates of Service	)	
Authority to provide facilities-based and	)	Docket No. 03-0779
resold local exchange and interexchange	)	
telecommunications services, or in the	)	
Alternative, Request for Declaratory Ruling	)	
than no such Certificates are required for	)	
the City of Naperville to provide the	)	
Proposed facilities and services.	)	

CITY OF NAPERVILLE RESPONSES
TO FIRST SET OF DATA REQUESTS FROM
THE ILLINOIS TELECOMMUNICATIONS ASSOCIATION

DATA REQUEST

ITA 1.14 Is the City of Naperville limiting the expansion of its digital fiber optic network and the provision of telecommunications services to within the boundaries of its Electric Public Utility service area? If not, explain where outside of those boundaries the expansion and provision would be.

Response: No, the City is planning to expand to the schools in nearby communities, which are outside of the City's Electric Utility service area.

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

CITY OF NAPERVILLE	)	
	)	
Application for Certificates of Service	)	
Authority to provide facilities-based and	)	Docket No. 03-0779
resold local exchange and interexchange	)	
telecommunications services, or in the	)	
Alternative, Request for Declaratory Ruling	)	
than no such Certificates are required for	)	
the City of Naperville to provide the	)	
Proposed facilities and services.	)	

CITY OF NAPERVILLE RESPONSES
TO FIRST SET OF DATA REQUESTS FROM
THE ILLINOIS TELECOMMUNICATIONS ASSOCIATION

DATA REQUEST

ITA 1.15 List each governmental entity to which the City of Naperville is considering whether to provide data communication services using its digital fiber optic network.

Response: The City of Naperville, School District #203, School District #204, the Naperville Public Libraries, and the Naperville Park District.

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

CITY OF NAPERVILLE	)	
	)	
Application for Certificates of Service	)	
Authority to provide facilities-based and	)	Docket No. 03-0779
resold local exchange and interexchange	)	
telecommunications services, or in the	)	
Alternative, Request for Declaratory Ruling	)	
than no such Certificates are required for	)	
the City of Naperville to provide the	)	
Proposed facilities and services.	)	

CITY OF NAPERVILLE RESPONSES
TO FIRST SET OF DATA REQUESTS FROM
THE ILLINOIS TELECOMMUNICATIONS ASSOCIATION

DATA REQUEST

ITA 1.16 Has the City of Naperville entered into intergovernmental agreements or is the City of Naperville in discussions to develop intergovernmental agreements with other governmental entities to provide data communications? If yes, please list.

Response: The City has not yet entered into any such intergovernmental agreements. There have only been preliminary discussions as to the possible need to do so in the future.

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

CITY OF NAPERVILLE	)	
	)	
Application for Certificates of Service	)	
Authority to provide facilities-based and	)	Docket No. 03-0779
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than no such Certificates are required for	)	
the City of Naperville to provide the	)	
Proposed facilities and services.	)	

CITY OF NAPERVILLE RESPONSES
TO FIRST SET OF DATA REQUESTS FROM
THE ILLINOIS TELECOMMUNICATIONS ASSOCIATION

DATA REQUEST

ITA 1.12 Did the City conduct a feasibility study in connection with its fiber optic system and/or proposed telecommunications operations? If yes, please provide a copy of any such studies?

Response: Yes. Attached is a copy of the feasibility study.

Naperville

N P L

Naperville Community Network

Thomas R. Cervelli and Associates

&

Technical Design Services, Inc.

June 24, 2003

District 203 World Class™

INDIAN PRAIRIE 204 SCHOOL DISTRICT

I. Executive Summary

Cervelli and Associates and Technical Design Services, Inc. (The Consultants) were retained by The City of Naperville, Naperville CUSD 203, Indian Prairie CUSD 204, the Naperville Public Libraries, and the Naperville Park District to perform a voice and data network Feasibility Study. The premise of the Feasibility Study is two fold:

- Combining the approximately 5,000 telephone lines that the five organizations maintain can be leveraged into a reduced cost voice system.

And

- To determine if leveraging the existing City of Naperville fiber installation can provide the participants with a high performance Naperville Community data network at a reduced cost.

The Consultants gathered all monthly voice and data telecommunications bills from each of the five participating organizations. The consultants then analyzed the existing cost structure versus recent market activity and alternative methods of providing services. The consultants found that it may be possible to reduce telecommunications costs by more than $300,000 per year by aggregating telecommunications services and negotiating a Centrex contract extension with SBC. The exact amount of savings will vary, depending on SBCs interest in a longer term relationship with the organizations.

Analysis of data networking alternatives provided a larger challenge because of the rapidly growing bandwidth needs of the School Districts. During the study, it became apparent that, with bandwidth requirements growing at 20% to 30% annually, only a high speed (gigabit per second) network would prevent a cycle of costly annual upgrades. It also became apparent that combining internet access bandwidth could save the five organizations more than $90,000 annually.

The primary focus of the consultants then became developing a cost model for a high speed data network that would leverage the City's existing duct bank infrastructure. We then compared these costs to the cost of a commercially provided high speed data network. The Consultants found that leveraging the existing City infrastructure to create a high speed data network for all the participants would result in a potential savings of approximately $1,750,000 over ten years.

The following provides the details that support our conclusions.

Background

In order to develop the necessary cost models necessary for the Feasibility Study, the Consultants performed the following work steps:

- Gathered monthly voice and data telecommunications bills from each of the five participating organizations

- Summarized current contracts and their durations.

- Reviewed each organizations current voice and data network configurations.

- Discussed current and future voice and data requirements, including:
  - Expansion plans
  - Bandwidth requirements (current and growth projections)
  - Electronic Data Security requirements
  - Voice network requirements

- Discussed possible benefits of creating a single purchasing authority or network with each organization.

- Worked with The City of Naperville Department of Public Utilities to determine how to best utilize the existing infrastructure to:
  - Install fiber optic cabling to the participants locations
  - Route the fiber optic cabling to collection points for Network Connectivity

As a part of the Feasibility Study, the consultants presented a summary of draft findings to the participants. The following report is a more detailed review of alternatives, costs and recommendations.

II. Voice services in a Naperville Community Network

The following section has four basic elements:

1. Current costs

This section establishes the baseline costs that the entities are presently incurring for services. The services identified are restricted to those that may be affected by future actions resulting from the feasibility study. Also detailed is information regarding contract obligations of the study participants.

Costs include all relevant costs from SBC. They include such items as federal access charges, SMDI links, and miscellaneous voice mail charges. They exclude taxes, additional listings, fire and police alarms, POTS lines and other charges that will not be affected by this process. Costs for local and long distance usage are also presented. In the case of the school districts, costs have been averaged to accommodate for summer vacation.

2. Projected Centrex costs

Centrex service is utilized by most of the study participants. An aggregated procurement of these services may reduce costs for the services. This section will estimate the impact of such an aggregated buy.

This section assumes that all entities will enter into a new Centrex agreement with SBC for 5 years, with a 2-year renewal option. Quantities and configuration will remain approximately the same. This means that the PBX at Naperville 203 PSAC, for example, will continue as presently configured—not reconfigured into a Centrex only environment (although that option would be available). Since usage is tied to line services, estimated impact of usage is also considered.

3. Costs for a traditional PBX based voice network

The main alternative to Centrex is a network with PBXs (or hybrid systems) deployed at most work/school sites. Access would be provided from key sites via ISDN Primary Rate Access (PRI) lines. These costs will be compared to 1 & 2 above.

Option 3A will identify the costs to tie the locations together using commercially available T1 lines from SBC. Option 3B will assume that the City of Naperville will provide this capacity as part of a band-width build out identified elsewhere within this document.

4. Cost for an IP based PBX voice network

This option will provide the costs that would be incurred by the participants should an IP solution be procured. This option will assume that an IP based network is in place.

Current costs for voice services

The following section is an overview of the voice services utilized by the entities. Some adjustments have been made to the data to reflect pending changes. For example, SD 204 usage charges in the report are adjusted to reflect costs not yet implemented by SBC. Many costs are not included because they are minor, or will be unaffected by the scope of the project. Items such as POTS lines, fire & police channels, etc. are not included.

City Voice overview

The City is primarily served by Centrex service provided by SBC from a single Central Office in Naperville. The City has approximately 1,100 Centrex lines – roughly 850 analog lines and 250 ISDN Centrex. There are several electronic key systems that support the Centrex service, primarily at the fire stations. The City owns its voice mail system that is interconnected to the Centrex via a SMDI (standard message desk interface) link. The finance department utilizes a NEC 2200 PBX system to provide Automatic Call Distributor functionality for electric utility customer service. The City utilized a single payment option in June 1994 to pre-pay $806,000 in Centrex cost through the term of the 10-year agreement. The common equipment costs include the costs of the SMDI links and circuits. In 2003 the City extended the initial contract for an additional 2 years, through June 2006.

Key statistics:

- 850 analog Centrex
- 250 ISDN Centrex
- Annual cost for Centrex 182,000
- Average Cost per line 13.78
- Contract expiration: June 2006

203 Voice overview

The school district is primarily served by Centrex, without systems at the school locations. Both high schools have some minor hybrid systems in departmental configurations. These will be controlled for in the various cost scenarios. 985 Centrex lines are in service.

The administration building is served by a recent vintage NEC 2000 system. That system has 100 stations and has 1 digital inbound trunk, 8 Centrex lines serving the voice mail system, 16 Centrex lines as trunks used for intra-district calling, and 8 miscellaneous additional lines. The PBX and Centrex do not integrate smoothly, and district wide voice mail does not exist. The district signed a 3 year Centrex contract that expires in November 2005.

Key statistics:

- 985 analog Centrex
- 0 ISDN Centrex
- 1 Digital voice T1
- Annual cost for Centrex 237,750
- Average Cost per line 19.52

- Contract expiration: November 2005

204 Voice overview

The school district is primarily served by AVN (Ameritech Virtual Network) Centrex interconnecting the schools/locations. Three SBC COs serve SD204—Naperville, Aurora and Bolingbrook. The district utilizes a centralized voice mail system, fed by SMDI links from all central offices. The Naperville central office has 1,095 lines, Aurora has 1,411 and Bolingbrook 71. Presently, the district utilizes a limited amount of ISDN circuits. The district will discontinue ISDN and they are not included in the detailed charts. The district paid for Centrex via a series of single payment options. Contracts expire in 2005.

The district has been carefully reassessing needs. Using current line counts would skew the results. For purposes of this study (which looks forward in time) a projected view of line quantities is appropriate. The following adjustments have been made:

Model elementary school: 55 lines
Model JHS & freshman campus: 65 lines
Model HS: 200 lines
DEC and B&G: 290 lines

Furthermore, to provide a valid comparison to projected monthly costs (in the SPO all costs are upfront, and therefore the comparative prices would be compared to zero) a cost per line estimate has been included. This cost was estimated to be $16.40 per line, per month. The cost per line of common equipment is 2.24

Key statistics:

- 2,448 analog Centrex
- 0 ISDN Centrex (current ISDN lines will be phased out)
- Annual cost for Centrex 547,500
- Average Cost per line 18.64
- Contract expiration: November 2005

Park District Voice overview

The Park District is also served by Centrex. Approximately 12 buildings have the service, which consists of 162 analog lines, and 46 ISDN Circuit Switched voice lines. The Park District has a 5 year contract that expires in October 2004.

Key statistics:

- 125 analog Centrex
- 49 ISDN Centrex
- Annual cost for Centrex $66,792
- Average Cost per line 32.07
- Contract expiration: October 2004

Library Voice Overview

The library will be opening its new facility in 2003. The Library's main voice service consists of networked PBX's. Nichols Library serves as the host PBX with T1's interconnecting switches at each location. The PBXs are recent vintage Mitel's.

Key statistics:
1 PRI ISDN Trunk
2 Voice T1s to branch locations
10 backup PBX trunks
Annual cost for 16,320
Contract expiration: TBD

Summary of Service Chart

The following chart summarizes the voice service overview.

Voice Services						
	Centrex Lines	ISDN line	Miscellaneous Voice trunks	Annual Cost	Average Cost per line	Contract Expiration
City of Naperville	850	250	0	182,000	13.87	Jun-06
District 203	985	0	1	237,750	19.52	Nov-05
District 204	2,448	0	0	547,569	18.64	Nov-05
Park District	125	49	0	66,972	32.07	Oct-04
Library	0	0	3	16,320	N/A	TBD
Total	4,408	299		1,050,611		

Usage Charges

The entities share similar characteristics for usage service. All are predominately local in scope. This creates a predominate reliance on intralata usage. Long distance service is a relatively minor portion of this expense.

Local usage

Local Usage					
	Average MOU	Monthly cost	Cost per MOU	Annual Cost	Contract Expiration
City of Naperville	207,000	3,198	0.015	38,376	Jun-06
District 203	199,850	2,685	0.013	32,220	Nov-05
District 204	478,990	7,185	0.015	86,218	Due now
Park District	47,902	867	0.018	10,404	Nov-03
Library	30,256	550	0.018	6,600	Nov-03
Total	963,998.00	14,485		173,818	

Long distance usage

LD costs are a reasonably minor cost to the entities.

Long Distance					
	Average MOU	Monthly cost	Cost per MOU	Annual Cost	Contract Expiration
City of Naperville	16,200	1,684.00	0.104	20,208	N/A
District 203	9,300	1,595.00	0.172	19,140	N/A
District 204	10,530	1,009.00	0.096	12,108	N/A
Park District	Nil	-	-	-	
Library	Nil		-	-	
Total	36,030.00	4,288.00		51,456.00	

Summary of current costs

Summary of Current Costs			
	Service	Usage	Total
City of Naperville	182,000	58,584	240,584
District 203	237,750	51,360	289,110
District 204	547,569	98,326	645,895
Park District	66,972	10,404	77,376
Library	16,320	6,600	22,920
Total	1,050,611	225,274	1,275,885

Projected voice costs for continuation of Centrex & Usage

Based on our experience and the current market conditions, we have developed the following estimate of Centrex service going forward.

Our estimate assumes the following:

- An aggregated RFP for the appropriate quantity of lines utilized by the entities, or, a price based upon negotiations conducted with SBC
- Common equipment costs will decrease by 5%
- A 5-year agreement with a 2-year renewal option at the entities discretion

Centrex pricing

Centrex costs consist of several components:

Centrex intercom feature: this is an element of every Centrex line, ISDN or analog. It supports the costs of the switching system.

End user common line: this charge is federally mandated and varies in cost. It is priced on a trunk equivalency basis, meaning that larger systems, such as those in this study, have lower per line costs for this element.

Centrex line cost: the cost of the copper pair associated with a Centrex line is a significant cost element. Tariff costs are $12.32 per month. To bring down costs in a competitive situation, SBC usually proposes "pair complements" (i.e. a 50 pair cable to a building with 40-50 lines). The number of lines per building impacts this cost—a small building with few lines would have a higher cost for this element than would a larger building.

Centrex common equipment: systems have different needs and different common equipment costs. These include such things as SMDI links for voice mail systems, various regulatory charges, etc. In the case of Indian Prairie, it also includes charges for connecting the 3 central offices together.

SBC has many threats to its revenue stream. Cell providers, CLECs, resellers, cable providers have all had an impact. They have incented their sales force to "protect the revenue stream. The possibility of losing almost 5,000 Centrex lines will be a major threat that will not be taken lightly.

We can assume aggressive pricing from SBC, particularly as an aggregated group. We have estimated that SBC will price the Centrex analog intercom price at $6 or below; the ISND intercom around $10, end user common line and STF in the $6 range. Common equipment costs should come down, and each entity has different overhead costs associated with common equipment. SD 204 is an anomaly. The 3 central office AVN configuration creates a higher level of common equipment costs than the other entities. We would expect some reduction in those costs, perhaps in the 5% range.

Applying these costs (but not taking 5% off the common system costs) to current configurations results in the following

Projected Centrex Costs						
	Centrex Lines	ISDN lines	Annual Cost	Average Cost per line	New Annual Cost	Average Cost per line
City of Naperville	850	250	182,000	13.87	170,400	12.91
District 203	985	0	237,750	19.52	148,830	12.59
District 204	2,448	0	547,569	18.64	418,314	16.48
Park District	125	49	66,972	32.07	27,408	13.13
Library	N/A	N/A	N/A	N/A	N/A	N/A
Total	4,408	299	1,034,291		764,953	

Usage

According to ICC regulations, the carrier that provides dial tone to an entity also provides all traffic to bands A & B (< 15 miles). The effect of this is the winning entity for dial tone also is assured of securing all intralata calls. This puts pressure on multiple elements and should work to the advantage of the procuring entity. Therefore we would expect to see aggressive pricing.

Projected Usage Costs				
	Average MOU	Present Annual Cost	Expected Annual Cost	Expected MOU Cost
City of Naperville	207,000	38,376	27,324	0.011
District 203	199,850	32,220	26,380	0.011
District 204	478,990	86,218	63,227	0.011
Park District	47,902	10,404	6,323	0.011
Library	30,256	6,600	3,994	0.011
Total	933,742	173,818	127,248	

Overall Savings

Overall Savings			
	Service Savings	Usage Savings	Total
City of Naperville	11,600	11,052	22,652
District 203	88,920	5,840	94,759
District 204	129,254	22,992	152,246
Park District	39,564	4,081	43,645
Library	-	2,606	2,606
Total	933,742		315,909

PBX Alternatives

PBX alternatives to Centrex were configured and priced. Since the Library recently purchased PBXs and is, essentially configured as this section would assume, pricing is not included. The Park District also recently competed PBXs against Centrex and selected Centrex. Given the investments made recently they likewise were not re-configured.

Each organization had a unique configuration which recognized, as accurately as possible, what the expected configuration would look like. To secure estimates, vendors were asked to configure and estimate prices per the model configurations.

This section provides pricing for 7 years. The purchase amount listed in the report includes 5 years of maintenance. An add on amount is added for years 6 & 7. Normally PBXs are amortized over a 7 year period. There actual location life often is 10 years or more. Since the Costs for years beyond 7 would decrease to be network costs and maintenance only

Many pros and cons exist between Centrex and PBX solutions. A detailed list of the advantages/disadvantages of Centrex vs. PBX, and VoIP based systems are contained in an appendix.

Major Considerations of PBX v Centrex

While there are as many pro's as there are con's for each configuration, there are some major considerations that go beyond a mere list. In general, cost is not THE major factor.

Needs of the constituencies: Governmental entities have many constituencies that they are accountable to, or serve. The employees, the community, the governing boards, the taxpayers, parents, teachers, students all play a role. How well does the present configuration meet the existing and emerging needs for communication?

Safety and security: The post 9/11 era has heightened everyone's awareness of the need for communications during times of great stress. E911 legislation was passed several years ago, requiring buildings in excess of 40,000 square feet to pass specific in-building location information with all 911 calls. This is easier to do in a distributed PBX mode, yet Centrex has some survivability characteristics that are superior to a PBX deployment. Safety, security and survivability are major considerations.

Ability to manage technology: PBXs pass more control to the end-user. This can be a benefit or detraction. How much churn does the organization have (for example, each new school year presents challenges) and what staff is available to manage that churn? Implementation of a change to PBXs presents a substantial challenge on staff.

Future needs: PBXs more readily adapt to new applications, particularly in areas where voice and data interact. Centrex is largely a voice driven environment. There is nothing inherently wrong with voice being separate from data but the more sophisticated the application needs, the more that integration becomes important.

Unified networking: Bandwidth driven applications typically are associated with needs that go beyond the PBX/Centrex issue. Video applications, such as distance learning or teleconferencing, are emerging needs that require substantial bandwidth. Security using IP to monitor buildings is another example. Elsewhere in this report we chronicle the ever increasing bandwidth requirements associated with internet based services. Wireless internet access is penetrating every grade level and office building. Typically, these applications are subject to stand-alone scrutiny. If bandwidth is available for these applications, voice can be an overlay application. If the network is in place, the telecommunications networking costs for T1's to tie together locations would not be incurred.

Erate: Erate is certainly a consideration. Centrex is a priority 1 service and is fully discounted. PBXs are not fundable at the need level of the eligible Naperville entities.

Facilities: PBXs require space, power, and back-up. Centrex has minimal needs in this regard. If space is not readily available, PBXs create an issue.

204 in a PBX mode overview

The configuration for SD 204 would be a series of interconnected PBXs. Two main switches would exist, a hub for all locations in the Naperville CO; and a second hub for Aurora/Bolingbrook. The assumption is that Nequa Valley HS would be the Naperville hub, and DEC (or WVHS) for Aurora. Two PRIs would terminate in the hub PBXs and provide access to their subtending locations. Models were used for the PBXs

- Elementary schools and Indian Plains AHS: 50 analog stations; 15 digital stations; and 2 back-up POTS lines terminated in the switch
- MHS, freshman campuses: 80 analog stations; 15 digital stations; and 2 back-up POTS lines.
- High schools: 200 analog stations; 50 digital stations; and 2 back-up POTS lines terminated in the switch
- DEC: 225 analog stations and 65 digital stations and 4 back-up.
- B&G: 30 analog stations and 2 digital stations with 1 POTS back-up

Each PBX would have a T1 circuit to the main switch. It would carry all traffic, intra-district and PSTN. PSTN traffic would go out over the PRIs. The two main hubs would be interconnected with 2 T1's to carry the traffic. Voice messaging would be centralized and all traffic originating or terminating on the other hub would be carried over these lines. All users would have DID numbers.